REMARKS

The Office action of June 18, 2004, has been carefully considered and reconsideration of the amended application is earnestly solicited.

The amendments in the specification are intended to correct a few minor errors. The amendment of Claim 2 is believed to remove the 35 USC § 112 objection listed at the top of Page 3 of the Office action. As to the indefiniteness objections to Claim 1 cited on Page 2 of the Office Action, the Examiner's attention is invited to the following portions of the specification:

Page 5, Lines 16-18: "The impedances of different parts of substance 6 are measured by appropriate electronic interrogation of each pair of electrodes 3, 3', and each impedance value is assigned to an adjustable scale of 0 to 255 for display."
Page 5, Lines 21-24: "Changes in the capacitance due to impedance changes at the outer surface of layer 1 are detected during interrogation of each capacitor pair 3, 3' at a selected alternating current frequency, e.g., at 500 Hz."
Page 5, Line 29 through Page 6, Line 2: "The isolation layer 1 also provides opportunities for the chemical attachment of active elements that can interact with biological molecules and particles."
Page 6, Lines 4-6: "The electric circuitry and software that services the array is similar to that disclosed in the afore-cited Tartagni patent and displays the output of the sensor array as a grayscale image with a resolution of 1:256."
Page 6, Lines 9-10: "The grayscale values can be used to image conductivity at high resolution without direct contact..."
Page 6, Lines 14-15: "For instance, urea can be sensed and measured by using bound urease to create NH_3 with subsequent reaction with HCl and conductivity change detection."
Page 7, Lines 17-27: "A simple chemical sensor was prepared by mixing conductive carbon black and ordinary silicone vacuum grease. A thin layer of this mixture was coated on the outer surface 1 of Figure 1... This simple experiment demonstrates the potential of the capacitor array for chemical sensing applications.

Other materials are also expected to exhibit impedance pattern changes upon exposure to certain vapors, e.g, Nafion with water vapor."

Page 9, Lines 10-11: "Each different pattern can be separately imaged by a programmed interrogation sequence."
Page 9, Lines 25-28: "...by following changes in impedance patterns, it becomes possible to perform biochemical or biological imaging in vivo on living tissue or on living cells or to monitor metabolic changes in real time or the progress of cryosurgery."

The cited excerpts clearly disclose all the features cited in claim 1, including structural elements, either explicitly or by reference to what is known in the art, e.g., to the Tartagni patent.

The amendment of claim 1 is also believed to overcome the rejection based on 35 USC § 102 by reciting an outer surface "which is amenable to the attachment of active elements that can interact with said component or a derivative thereof." No such restriction as to the composition of the outer surface is taught in the Tartagni patent. The materials cited in the last two lines of page 3 of the Office action from column 8, lines 35-41 of Tartagni refer to a "passivation layer 90" [lines 35-38] which is covered by a "second passivation layer" [lines 38-41]. Since the cited materials are covered, any materials constituting the first passivation layer 90 can not possibly provide the outer surface that is recited in claim 1. The amended claim 1 is therefore not anticipated by Tartagni, and neither are all the subsidiary claims.

As to the obviousness rejection based on 35 USC § 103, it is noted that although it now appears obvious, a posteriori, to modify the surface of the Tartagni device so as to expand its utility include immunological analysis, such a

modification was not obvious prior to the invention to either Stetter or Tartagni for the following reasons.

It is, of course, common knowledge, that most inventions arise from a combination of known entities. It is the unexpected result of a combination which constitutes the invention. In the present case, it was not expected, based on Tartagni or Stetter, that a chip for imaging relatively large objects, such as human fingers, could detect miniscule molecules. No one could anticipate that a molecular layer that is more than 10,000 times smaller than a finger can intercept evanescent lines of capacitive force with sufficient disruption to measure with Tartagni's electronic circuitry. This was a very surprising result. There were no models of the capacitor available to either Stetter or Tartagni that would indicate such behavior, no guidance or publications to predict the value of this approach and unique combination of technology. The layers need to be compatible with the chip surface and chemistry as well as the electronics and physics of the detection. That this is possible and applicable to the measurement of molecular layers and events, therein is a unique aspect of the invention. The finding that the required resolution or sensitivity or selectivity for a practical assay in such a system can be achieved is both novel, surprising, and not anticipated by either Stetter or Tartagni until after they were put together, and now looks obvious in retrospect. The fact is that until this discovery, no one in the field of Tartagni or Stetter [including Tartagni and

Stetter] have seen, published, or done this experiment and so it was not obvious to anyone up to the time of invention.

Furthermore, it was far from obvious that the application of Stetter's layer to the Tartagni device would yield the superior results described in the disclosure which surpass by far anything that could be expected from such a combination.

For these reasons, it is submitted that the application of Stetter's layers to Tartagni's chip was not obvious prior to the invention and that a 35 USC § 103 rejection is not valid in this case.

Respectfully submitted by,

Solomon Zaromb
Registration No. 28,571
9S 706 William Dr.
Hinsdale, IL 60527
Telephone: 630/654-2109
Fax: 630/986-8764

CERTIFICATION OF FAXING

The undersigned hereby certifies that this response is about to be transmitted to fax number 703-872-9306 on or about September 8, 2004.

Solomon Zaromb